

Released Assessment Questions, 2016

ANSWERS

Grade 9 Assessment of Mathematics • Academic

DIRECTIONS

Answering Multiple-Choice Questions

Answer all multiple-choice questions. If you fill in more than one answer to a question, or leave a question blank, the question will be scored zero. Incorrect answers will also be scored zero.

Answering Open-Response Questions

Do all of your work for each question in the space provided for the question only.

Write your solutions, including all calculations, clearly and completely.

Record ALL your answers to multiple-choice and open-response questions in this booklet.

ATTENTION:

There are more open-response questions in this booklet than a regular booklet.

Education Quality and Accountability Office

EQAO

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You are now ready to start.

Multiple-Choice

page 2

Please read the questions in the Question Booklet; then fill in your answers below.

To indicate your answer, use a pencil to fill in the appropriate circle below completely.

Like this: ☒

Not like this: ☐ ☐ ☐

Clearly erase your answer if you wish to change it and fill in the circle for your new answer.

Fill in only one circle for each question.

1 ☐ ☐ ☐ ☐

2 ☐ ☐ ☐ ☐

3 ☐ ☐ ☐ ☐

4 ☐ ☐ ☐ ☐

5 ☐ ☐ ☐ ☐

6 ☐ ☐ ☐ ☐

7 ☐ ☐ ☐ ☐

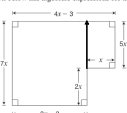
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Open-Response

page 3

Floored Areas

The diagram of the floor shown below has algebraic expressions for the lengths of its sides, in metres.



Determine an unsimplified expression for the total area of the floor, A, in m².

A = \_\_\_\_\_

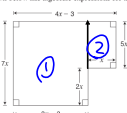
Simplify your expression fully. Show your work.

Open-Response

page 3

Floored Areas

The diagram of the floor shown below has algebraic expressions for the lengths of its sides, in metres.



Determine an unsimplified expression for the total area of the floor, A, in m².

A =  $7x(4x-3) + x(5x)$

Simplify your expression fully. Show your work.


$$A = 28x^2 - 21x + 5x^2$$
$$A = 33x^2 - 21x$$

Open-Response

page 4

Folding Time

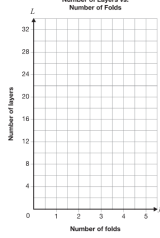
A piece of paper is folded in half, which results in two layers of paper. Then the paper is folded in half again to make four layers, and so on.



The number of layers and the number of folds are recorded in the chart.

Number of folds	Number of layers
0	1
1	2
2	4
3	
4	

Number of Layers vs. Number of Folds



Determine whether this relationship is linear or non-linear.

Circle one: Linear Non-linear

Justify your answer:


You have the option of using the grid if you wish.

Open-Response

page 4

Folding Time

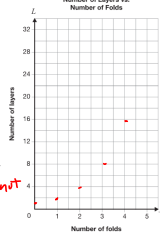
A piece of paper is folded in half, which results in two layers of paper. Then the paper is folded in half again to make four layers, and so on.



The number of layers and the number of folds are recorded in the chart.

Number of folds	Number of layers
0	1
1	2
2	4
3	8
4	16

Number of Layers vs. Number of Folds



Determine whether this relationship is linear or non-linear.

Circle one: Linear Non-linear

Justify your answer:

You have the option of using the grid if you wish.

First Differences are not the same

Open-Response

page 5

Theatre Programs

A company charges schools to print programs for school plays. Information about the linear relationship between the total cost and number of programs printed is shown below.

Number of programs, $n$	Total cost, $C$ (\$)
350	220
500	250
750	300

Determine an equation to represent this relationship.

Show your work.

You have the option of using the grid if you wish.

Open-Response

page 5

Theatre Programs

A company charges schools to print programs for school plays. Information about the linear relationship between the total cost and number of programs printed is shown below.

Number of programs, $n$	Total cost, $C$ (\$) $(350, 220)$ $x_1, y_1$
350	220
500	250 $(500, 250)$ $x_2, y_2$
750	300

Determine an equation to represent this relationship.

Show your work.

You have the option of using the grid if you wish.

$C = 19$   
 $programs = n$

$y = mx + b$   
 $y = \frac{1}{5}x + 120$   
 $C = \frac{1}{5}n + 120$

$m = \frac{y_2 - y_1}{x_2 - x_1}$   
 $= \frac{250 - 220}{500 - 350}$   
 $= \frac{30}{150}$   
 $= \frac{6}{30} = \frac{2}{10} = \frac{1}{5}$

$(500, 250)$   
 $y = \frac{1}{5}x + b$   
 $250 = \frac{1}{5}(500) + b$   
 $250 = 100 + b$   
 $250 - 100 = b$   
 $150 = b$

$y = 0.2x + 120$

Open-Response

page 6

Standard Lines

Two lines are represented by the equations below.

Line 1:  $x - 2y + 6 = 0$       Line 2:  $3x + 6y - 18 = 0$

Determine which line could be represented by  $y = -\frac{1}{2}x + 3$ .

Circle one:    Line 1    Line 2    Both

Justify your answer. Include information for both Line 1 and Line 2.

Line 1  
 $x - 2y + 6 = 0$   
 $\frac{x}{2} + \frac{6}{2} = \frac{2y}{2}$   
 $\frac{1}{2}x + 3 = y$

Line 2  
 $3x + 6y - 18 = 0$   
 $6y = -3x + 18$   
 $\frac{6y}{6} = \frac{-3x}{6} + \frac{18}{6}$   
 $y = -\frac{1}{2}x + 3$

Open-Response

page 7

Terrific Ts

A school orders T-shirts from Terrific Ts. The total cost is made up of a set-up fee of \$115 and a cost of \$3 per T-shirt.

Terrific Ts requires a minimum order of 25 T-shirts. The school can spend a maximum of \$800.

Determine all the possible values of the total cost,  $C$ , and the number of T-shirts,  $n$ , for this situation.

Show your work.

$y = mx + b$   
 $y = 3x + 115$   
 $x = 25$   
 $y = 3(25) + 115$   
 $y = 75 + 115$   
 $y = 190$

$800 = 3x + 115$   
 $800 - 115 = 3x$   
 $685 = 3x$   
 $228.3 = x$

The possible values of  $n$  in this situation are 25 - 228

The possible values of  $C$  in this situation are 190 - 800

$C = 3n + 115$   
 $y = 3(228) + 115$   
 $= 799$

Open-Response

page 8

Six and Five Sides

A regular hexagon and a regular pentagon are joined as shown below.

Complete the table below with the values of  $x$  and  $y$ . Justify your answer using geometric properties.

Value	Justification using geometric properties
$x =$ _____	
$y =$ _____	

Multiple-Choice

page 9

Please read the questions in the Question Booklet; then fill in your answers below.

To indicate your answer, use a pencil to fill in the appropriate circle below completely.

Like this: ☒    Not like this: ☐ ☐ ☐

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Fill in only **one** circle for each question.

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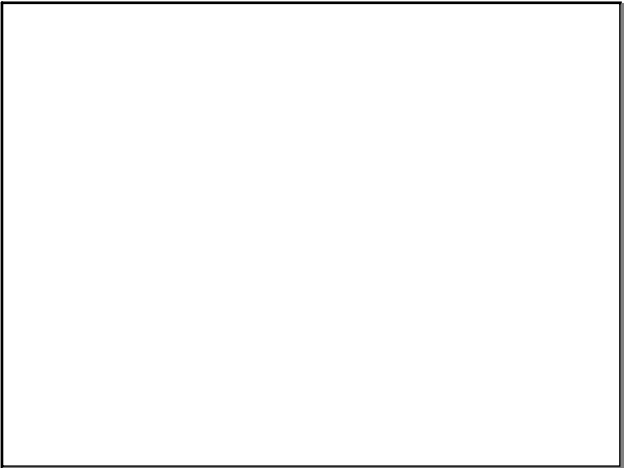
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